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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/731,603	KILIAN ET AL.
	Examiner	Art Unit	
	Lev I. Iwashko	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>09 December 2003</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-42</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-42</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>03 May 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following are quotations of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2.   Claims 1-31, 33-35, 37-49, and 41-42 are rejected under U.S.C. 102(e) as being

anticipated by Pandya (US PGPub 2004/0030806).

> Claim 1.   A method of processing data in a computer system comprising at least one
> host and at least one content addressable storage system which stores data
> for the at least one host, *(Section 0163, lines 1-2 – State that the host
> transfers data to the system buffer memory. Section 0118, line 10 –
> Denotes a content addressable memory)*
> -   wherein the at least one host accesses data units stored on the at least
>   one storage system using content addresses generated based on the
>   content of the data units, the method comprising an act of: *(Section
>   0121, lines 76-100 – Describe how the one host accesses data units
>   stored on the at least one storage system using content addresses*

*generated based on the content of the data units. Section 0121, lines
27-29 – State that the engines receive the write data from the host)*

(a) in response to an access request from the at least one host computer for
a unit of data identified by a content address, parsing the content address
to determine at least one aspect of a physical storage location for the unit
of data on the at least one storage system. *(Section 0124, lines 3-8 – State
that the host queues the storage commands to the processor)*

Claim 2. The method of claim 1, wherein the at least one storage system includes a
plurality of storage nodes, *(Section 0124, lines 84-86 – Denote storage
nodes)*

- and wherein the act (a) further comprises an act of parsing the content
address to determine which of the plurality of storage nodes includes
the physical storage location for the unit of data. *(Section 0125, lines
91-100 – State that the data transfer maintains proper information
from the storage system on the nodes)*

Claim 3. The method of claim 2, wherein at least some of the plurality of storage
nodes include a plurality of disks, and wherein the act (a) further
comprises an act of parsing the content address to determine which of the
plurality of disks includes the physical storage location for the unit of data.
*(Section 0125, lines 91-100 – State that the data transfer maintains proper
information from the storage system on the nodes. Section 0092, lines 6-7
– State that there is a disk array. The disk arrays comprise the nodes.
Section 0129, lines 8-15 – State the following: "The node values and the
fields they represent are programmable. The action field is extracted
when a field matches a specific node value. The action item defines the
next step, which may include extracting and comparing a new field,
performing other operations like ALU operations on specific data fields
associated with this node-value pair, or may indicate a terminal node, at
which point the classification of the specific packet is complete")*

Claim 4.   The method of claim 1, wherein the act (a) is performed in response to a request to retrieve the unit of data from the at least one storage system, and wherein the method further comprises an act of passing the unit of data to the at least one host. *(Section 0124, lines26-29 – State that the host requests access to the storage unit)*

Claim 5.   The method of claim 1, wherein the act (a) is performed in response to a request to write the unit of data to the at least one storage system. *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

Claim 6.   The method of claim 5, further comprising an act of storing the unit of data at least partially at the physical storage location. *(Section 0128, lines 30-31 – State that the session is stored on the cache)*

Claim 7.   The method of claim 5, further comprising acts of:
  -   applying an algorithm to determine a specified physical storage location based on the content address; *(Section 0120, lines 72-80 – State the following: "The local session caches may follow exclusivity caching principles, so that multiple processor complexes do not cause any race conditions, damaging the state of the session. Other caching protocols like MESI protocol may also be used to achieve similar results. When a session entry is cached in a processor complex, and another processor complex needs that entry, this entry is transferred to the new processor with exclusive access or appropriate caching state based on the algorithm")*
  -   determining whether the specified physical storage location is suitable to store the unit of data, and when it is not, performing acts of: *(Section 0013 – Describes storage management)*
  -   storing the unit of data at a different physical storage location; *(Section 0128, lines 20-23 - The session memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)*

    - and storing a pointer to the different physical storage location at the specified physical storage location. *(Section 218, lines 1-2 – State the following: "The flow controller acknowledges the receipt of the request and the buffer pointers for DMA to the host driver")*

Claim 8.   The method of claim 7, further comprising acts of:

    - moving the unit of data from the different physical storage location to the specified storage location; *(Section 0128, lines 20-23 - The session memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)*

    - and deleting the pointer to the different physical storage location. *(Section 0128, lines 11-14 – State the following: "If there is no tag match in the cache array with the hash index, the look-up block uses this key to find the session entry from the external memory and replaces the current session cache entry with that session entry")*

Claim 9.   The method of claim 1, wherein the storage system comprises a plurality of storage nodes, and wherein the method further comprises an act of assigning, to at least one of the plurality of storage nodes, a range of content addresses so that the at least one of the plurality of storage nodes is assigned to store a plurality of units of data having content address within the range of content addresses. *(Section 0124, lines 84-86 – Denote storage nodes. Section 0125, lines 91-100 – State that the data transfer maintains proper information from the storage system on the nodes)*

Claim 10.   The method of claim 1, further comprising an act of determining the physical storage location of the unit of data solely by the act of parsing and without performing an index lookup. *(Section 0118, lines 16-26 – State the following: "The input buffers 2004 queue the packets/descriptor and/or the packet headers that need to be classified. Then the classification sequencer 2003 fetches the next available packet in the queue and extracts the appropriate packet fields based on the global field descriptor sets, block 2007, which are, or can be, programmed. Then the*

classifier passes these fields to the content addressable memory (CAM) array, block 2009, to perform the classification. As the fields are passed through the CAM array, the match of these fields identifies next set of fields to be compared and potentially their bit field location")

Claim 11.   At least one computer readable medium encoded with instructions that, when executed on a computer system perform, a method of processing data, *(Abstract, lines 1-14)*

- wherein the computer system comprises at least one host and at least one content addressable storage system which stores data for the at least one host, and *(Section 0163, lines 1-2 – State that the host transfers data to the system buffer memory. Section 0118, line 10 – Denotes a content addressable memory)*

- wherein the at least one host accesses data units stored on the at least one storage system using content addresses generated based on the content of the data units, the method comprising an act of: *(Section 0121, lines 76-100 – Describe how the one host accesses data units stored on the at least one storage system using content addresses generated based on the content of the data units. Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

- (a) in response to an access request from the at least one host computer for a unit of data identified by a content address, parsing the content address to determine at least one aspect of a physical storage location for the unit of data on the at least one storage system. *(Section 0124, lines 3-8 – State that the host queues the storage commands to the processor)*

Claim 12.   The at least one computer readable medium of claim 11, wherein the at least one storage system includes a plurality of storage nodes, *(Section 0124, lines 84-86 – Denote storage nodes)*

- and wherein the act (a) further comprises an act of parsing the content address to determine which of the plurality of storage nodes includes

the physical storage location for the unit of data. *(Section 0125, lines 91-100 – State that the data transfer maintains proper information from the storage system on the nodes)*

Claim 13. The at least one computer readable medium of claim 12, wherein at least some of the plurality of storage nodes include a plurality of disks, and wherein the act (a) further comprises an act of parsing the content address to determine which of the plurality of disks includes the physical storage location for the unit of data. *(Section 0125, lines 91-100 – State that the data transfer maintains proper information from the storage system on the nodes. Section 0092, lines 6-7 – State that there is a disk array. The disk arrays comprise the nodes. Section 0129, lines 8-15 – State the following: "The node values and the fields they represent are programmable. The action field is extracted when a field matches a specific node value. The action item defines the next step, which may include extracting and comparing a new field, performing other operations like ALU operations on specific data fields associated with this node-value pair, or may indicate a terminal node, at which point the classification of the specific packet is complete")*

Claim 14. The at least one computer readable medium of claim 11, wherein the act (a) is performed in response to a request to retrieve the unit of data from the at least one storage system, and wherein the method further comprises an act of passing the unit of data to the at least one host. *(Section 0124, lines26-29 – State that the host requests access to the storage unit)*

Claim 15. The at least one computer readable medium of claim 11, wherein the act (a) is performed in response to a request to write the unit of data to the at least one storage system. *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

Claim 16. The at least one computer readable medium of claim 15, wherein the method further comprises an act of storing the unit of data at least partially

at the physical storage location. *(Section 0128, lines 30-31 – State that the session is stored on the cache)*

Claim 17. The at least one computer readable medium of claim 15, wherein the method further comprises acts of:

- applying an algorithm to determine a specified physical storage location based on the content address; *(Section 0120, lines 72-80 – State the following: "The local session caches may follow exclusivity caching principles, so that multiple processor complexes do not cause any race conditions, damaging the state of the session. Other caching protocols like MESI protocol may also be used to achieve similar results. When a session entry is cached in a processor complex, and another processor complex needs that entry, this entry is transferred to the new processor with exclusive access or appropriate caching state based on the algorithm")*

- determining whether the specified physical storage location is suitable to store the unit of data, and when it is not, performing acts of: *(Section 0013 – Describes storage management)*

- storing the unit of data at a different physical storage location; and *(Section 0128, lines 20-23 - The session memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)*

- storing a pointer to the different physical storage location at the specified physical storage location. *(Section 218, lines 1-2 – State the following: "The flow controller acknowledges the receipt of the request and the buffer pointers for DMA to the host driver")*

Claim 18. The at least one computer readable medium of claim 17, wherein the method further comprises acts of:

- moving the unit of data from the different physical storage location to the specified storage location; *(Section 0128, lines 20-23 - The session*

memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)

- and deleting the pointer to the different physical storage location. *(Section 0128, lines 11-14 – State the following: "If there is no tag match in the cache array with the hash index, the look-up block uses this key to find the session entry from the external memory and replaces the current session cache entry with that session entry")*

Claim 19.   The at least one computer readable medium of claim 11, wherein the storage system comprises a plurality of storage nodes, and wherein the method further comprises an act of assigning, to at least one of the plurality of storage nodes, a range of content addresses so that the at least one of the plurality of storage nodes is assigned to store a plurality of units of data having content address within the range of content addresses. *(Section 0124, lines 84-86 – Denote storage nodes. Section 0125, lines 91-100 – State that the data transfer maintains proper information from the storage system on the nodes)*

Claim 20.   The at least one computer readable medium of claim 11, wherein the method further comprises an act of determining the physical storage location of the unit of data solely by the act of parsing and without performing an index lookup. *(Section 0118, lines 16-26 – State the following: "The input buffers 2004 queue the packets/descriptor and/or the packet headers that need to be classified. Then the classification sequencer 2003 fetches the next available packet in the queue and extracts the appropriate packet fields based on the global field descriptor sets, block 2007, which are, or can be, programmed. Then the classifier passes these fields to the content addressable memory (CAM) array, block 2009, to perform the classification. As the fields are passed through the CAM array, the match of these fields identifies next set of fields to be compared and potentially their bit field location")*

Claim 21.   A content addressable storage system for use in a computer system,
including the content addressable storage system and at least one host,
wherein the at least one host accesses data units stored on the content
addressable storage system using content addresses generated based on the
content of the data units, the content addressable storage system
comprising: *(Section 0163, lines 1-2 – State that the host transfers data to
the system buffer memory. Section 0118, line 10 – Denotes a content
addressable memory)*

-    at least one storage device to store data received from the at least one
host; and *(Section 0121, lines 76-100 – Describe how the one host
accesses data units stored on the at least one storage system using
content addresses generated based on the content of the data units.
Section 0121, lines 27-29 – State that the engines receive the write
data from the host)*

-    at least one controller that, in response to an access request from the at
least one host computer for a unit of data identified by a content
address, parses the content address to determine at least one aspect of a
physical storage location for the unit of data on the at least one storage
system. *(Section 0124, lines 1-8 – State that the host queues the storage
commands to the processor with the use of a controller)*

Claim 22.   The content addressable storage system of claim 21, further comprising a
plurality of storage nodes *(Section 0124, lines 84-86 – Denote storage
nodes)*

-    that comprise the at least one storage device, and wherein the at least
one controller parses the content address to determine which of the
plurality of storage nodes includes the physical storage location for the
unit of data. *(Section 0125, lines 91-100 – State that the data transfer
maintains proper information from the storage system on the nodes)*

Claim 23.   The content addressable storage system of claim 22, wherein at least some
of the plurality of storage nodes include a plurality of disks, and wherein

the at least one controller parses the content address to determine which of the plurality of disks includes the physical storage location for the unit of data. *(Section 0125, lines 91-100 – State that the data transfer maintains proper information from the storage system on the nodes. Section 0092, lines 6-7 – State that there is a disk array. The disk arrays comprise the nodes. Section 0129, lines 8-15 – State the following: "The node values and the fields they represent are programmable. The action field is extracted when a field matches a specific node value. The action item defines the next step, which may include extracting and comparing a new field, performing other operations like ALU operations on specific data fields associated with this node-value pair, or may indicate a terminal node, at which point the classification of the specific packet is complete")*

Claim 24.   The content addressable storage system of claim 21, wherein the at least one controller parses the content address in response to a request to retrieve the unit of data from the at least one storage system, and wherein the controller passes the unit of data to the at least one host. *(Section 0124, lines26-29 – State that the host requests access to the storage unit)*

Claim 25.   The content addressable storage system of claim 21, wherein the at least one controller parses the content address in response to a request to write the unit of data to the at least one storage system. *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

Claim 26.   The content addressable storage system of claim 25, wherein the at least one controller stores the unit of data at the physical storage location. *(Section 0128, lines 30-31 – State that the session is stored on the cache)*

Claim 27.   The content addressable storage system of claim 25, wherein the at least one controller:

-     applies an algorithm to determine a specified physical storage location based on the content address; *(Section 0120, lines 72-80 – State the following: "The local session caches may follow exclusivity caching principles, so that multiple processor complexes do not cause any race*

conditions, damaging the state of the session. Other caching protocols like MESI protocol may also be used to achieve similar results. When a session entry is cached in a processor complex, and another processor complex needs that entry, this entry is transferred to the new processor with exclusive access or appropriate caching state based on the algorithm")

- determines whether the specified physical storage location is suitable to store the unit of data, and when it is not: *(Section 0013 – Describes storage management)*

- stores the unit of data at a different physical storage location; and *(Section 0128, lines 20-23 - The session memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)*

- stores a pointer to the different physical storage location at the specified physical storage location. *(Section 218, lines 1-2 – State the following: "The flow controller acknowledges the receipt of the request and the buffer pointers for DMA to the host driver")*

Claim 28.   The content addressable storage system of claim 27, wherein the at least one controller:

- moves the unit of data from the different physical storage location to the specified storage location; and *(Section 0128, lines 20-23 - The session memory controller is also responsible to move the evicted local session cache entries into the global cache inside this block)*

- deletes the pointer to the different physical storage location. *(Section 0128, lines 11-14 – State the following: "If there is no tag match in the cache array with the hash index, the look-up block uses this key to find the session entry from the external memory and replaces the current session cache entry with that session entry")*

Claim 29.   The content addressable storage system of claim 21, further comprising a plurality of storage nodes that comprise the at least one storage device,

wherein the controller assigns, to at least one of the plurality of storage

nodes, a range of content addresses so that the at least one of the plurality

of storage nodes is assigned to store a plurality of units of data having

content address within the range of content addresses. *(Section 0124, lines*

84-86 – Denote storage nodes. Section 0125, lines 91-100 – State that the

data transfer maintains proper information from the storage system on the

nodes)

Claim 30.   The content addressable storage system of claim 21, wherein the controller

determines the physical storage location of the unit of data solely by

parsing the content address and without performing an index lookup.

(Section 0118, lines 16-26 – State the following: "The input buffers 2004

queue the packets/descriptor and/or the packet headers that need to be

classified. Then the classification sequencer 2003 fetches the next

available packet in the queue and extracts the appropriate packet fields

based on the global field descriptor sets, block 2007, which are, or can be,

programmed. Then the classifier passes these fields to the content

addressable memory (CAM) array, block 2009, to perform the

classification. As the fields are passed through the CAM array, the match

of these fields identifies next set of fields to be compared and potentially

their bit field location")

Claim 31.   A method of processing data in a computer system comprising at least one

host and at least one content addressable storage system which stores data

for the at least one host, *(Section 0163, lines 1-2 – State that the host*

transfers data to the system buffer memory. Section 0118, line 10 –

Denotes a content addressable memory)

-      wherein the at least one host accesses data units stored on the at least

one storage system using content addresses generated based on the

content of the data units, the method comprising acts of: *(Section*

0121, lines 76-100 – Describe how the one host accesses data units

stored on the at least one storage system using content addresses

*generated based on the content of the data units. Section 0121, lines
27-29 – State that the engines receive the write data from the host)*

- (a) receiving, from the host, a request to store a unit of data on the
  storage system, the unit of data having a content address based on the
  content of the unit of data; *(Section 0124, lines26-29 – State that the
  host requests access to the storage unit)*

- (b) determining, based on the content address, a first storage location
  on the storage system to which the content address maps; *(Section
  0124,lines 3-8 – State that the host queues the storage commands to
  the processor)*

- (c) storing a pointer for the first unit of data at the first storage
  location, the pointer pointing to a second storage location; and *(Section
  0121, lines 27-29 – State that the engines receive the write data from
  the host)*

- (d) storing the unit of data at the second storage location on the storage
  system. *(Section 0183, lines 1-4 – State the following: "FIG. 46
  illustrates the RDMA Read data flow in more details. This diagram
  illustrates the RDMA read request being received by the initiator from
  the target and the RDMA Read data being written out from the
  initiator to the target.")*

Claim 33.   The method of claim 31, further comprising acts of:

- (e) receiving, from the host, a request to retrieve the unit of data, the
  request including a content address of the unit of data; *(Section 0124,
  lines26-29 – State that the host requests access to the storage unit)*

- (f) mapping the content address to the first storage location; *(Section
  0130, lines 1-7 – State the following: "FIG. 31 illustrates a read
  operation between an initiator and target. The initiator sends a READ
  command request, block 3101, to the target to start the transaction.
  This is an application layer request which is mapped to specific SCSI*

*protocol command which is than transported as an READ protocol
data unit, block 3102, in an IP based storage network.")*

- (g) retrieving the pointer from the first storage location; and *(Section
0171, lines 7-11 – State the following: "The incoming packet with IP
storage is transferred from the TCP/IP engine through DMA, blocks
2402 and 2408, into the data memory (a data RAM is an example of
such memory), block 2409.")*

- (h) using the pointer to access the second storage location and retrieve
the unit of data from the second storage location. *(Section 0121, lines
27-29 – State that the engines receive the write data from the host)*

Claim 34.   The method of claim 31, further comprising acts of:

- (i) periodically searching the at least one storage system for pointers to
other storage locations on the storage system which store units of data;
and *(Section 0120, line 14 – Declares a packet look-up block)*

- (j) determining whether any of the pointers to other storage locations
can be replaced with their corresponding units of data. *(Section 0120,
lines 14-26)*

Claim 35.   At least one computer readable medium encoded with instructions that,
when executed on a computer system, perform a method of processing
data, wherein the computer system comprises at least one host and at least
one content addressable storage system which stores data for the at least
one host, and *(Section 0163, lines 1-2 – State that the host transfers data
to the system buffer memory. Section 0118, line 10 – Denotes a content
addressable memory)*

- wherein the at least one host accesses data units stored on the at least
one storage system using content addresses generated based on the
content of the data units, the method comprising acts of: *(Section
0121, lines 76-100 – Describe how the one host accesses data units
stored on the at least one storage system using content addresses*

generated based on the content of the data units. Section 0121, lines
27-29 – State that the engines receive the write data from the host)

- (a) receiving, from the host, a request to store a unit of data on the storage system, the unit of data having a content address based on the content of the unit of data; *(Section 0124, lines26-29 – State that the host requests access to the storage unit)*

- (b) determining, based on the content address, a first storage location on the storage system to which the content address maps; *(Section 0124,lines 3-8 – State that the host queues the storage commands to the processor)*

- (c) storing a pointer for the first unit of data at the first storage location, the pointer pointing to a second storage location; and *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

- (d) storing the unit of data at the second storage location on the storage system. *(Section 0183, lines 1-4 – State the following: "FIG. 46 illustrates the RDMA Read data flow in more details. This diagram illustrates the RDMA read request being received by the initiator from the target and the RDMA Read data being written out from the initiator to the target.")*

Claim 37.   The at least one computer readable medium of claim 35, wherein the method further comprises acts of:

- (e) receiving, from the host, a request to retrieve the unit of data, the request including a content address of the unit of data; *(Section 0124, lines26-29 – State that the host requests access to the storage unit)*

- (f) mapping the content address to the first storage location; *(Section 0130, lines 1-7 – State the following: "FIG. 31 illustrates a read operation between an initiator and target. The initiator sends a READ command request, block 3101, to the target to start the transaction. This is an application layer request which is mapped to specific SCSI*

protocol command which is than transported as an READ protocol

data unit, block 3102, in an IP based storage network.")

- (g) retrieving the pointer from the first storage location; and *(Section 0171, lines 7-11 – State the following: "The incoming packet with IP storage is transferred from the TCP/IP engine through DMA, blocks 2402 and 2408, into the data memory (a data RAM is an example of such memory), block 2409.")*

- (h) using the pointer to access the second storage location and retrieve the unit of data from the second storage location. *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

Claim 38.   The at least one computer readable medium of claim 35, wherein the method further comprises acts of:

- (i) periodically searching the at least one storage system for pointers to other storage locations on the storage system which store units of data; and *(Section 0120, line 14 – Declares a packet look-up block)*

- (j) determining whether any of the pointers to other storage locations can be replaced with their corresponding units of data. *(Section 0120, lines 14-26)*

Claim 39.   A content addressable storage system for use in a computer system that includes at least one host, *(Section 0163, lines 1-2 – State that the host transfers data to the system buffer memory. Section 0118, line 10 – Denotes a content addressable memory)*

- wherein the at least one host accesses data units stored on the content addressable storage system using content addresses generated based on the content of the data units, the content addressable storage system comprising: *(Section 0121, lines 76-100 – Describe how the one host accesses data units stored on the at least one storage system using content addresses generated based on the content of the data units. Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

- at least one storage device to store data received from the at least one

  host; and at least one controller that: *(Section 0124,lines 1-8 – State*

  that the host queues the storage commands to the processor with the

  use of a controller)

- receives, from the host, a request to store a unit of data on the storage

  system, the unit of data having a content address based on the content

  of the unit of data; *(Section 0124, lines26-29 – State that the host*

  requests access to the storage unit)

- determines, based on the content address, a first storage location on the

  storage system to which the content address maps; *(Section 0124,lines*

  3-8 – State that the host queues the storage commands to the

  processor)

- stores a pointer for the first unit of data at the first storage location, the

  pointer pointing to a second storage location; and *(Section 0121, lines*

  27-29 – State that the engines receive the write data from the host)

- stores the unit of data at the second storage location on the storage

  system. *(Section 0183, lines 1-4 – State the following: "FIG. 46*

  illustrates the RDMA Read data flow in more details. This diagram

  illustrates the RDMA read request being received by the initiator from

  the target and the RDMA Read data being written out from the

  initiator to the target.")

Claim 41.   The content addressable storage system of claim 39, wherein the controller

further:

- receives, from the host, a request to retrieve the unit of data, the

  (Section 0124, lines26-29 – State that the host requests access to the

  *storage unit)*request including a content address of the unit of data;

- maps the content address to the first storage location; *(Section 0130,*

  lines 1-7 – State the following: "FIG. 31 illustrates a read operation

  between an initiator and target. The initiator sends a READ command

  request, block 3101, to the target to start the transaction. This is an

application layer request which is mapped to specific SCSI protocol command which is than transported as an READ protocol data unit, block 3102, in an IP based storage network.")

- retrieves the pointer from the first storage location; and *(Section 0171, lines 7-11 – State the following: "The incoming packet with IP storage is transferred from the TCP/IP engine through DMA, blocks 2402 and 2408, into the data memory (a data RAM is an example of such memory), block 2409.")*

- uses the pointer to access the second storage location and retrieve the unit of data from the second storage location. *(Section 0121, lines 27-29 – State that the engines receive the write data from the host)*

Claim 42.   The content addressable storage system of claim 39, wherein the controller is adapted to:

- periodically search the at least one storage system for pointers to other storage locations on the storage system which store units of data; and *(Section 0120, line 14 – Declares a packet look-up block)*

- determine whether any of the pointers to other storage locations can be replaced with their corresponding units of data. *(Section 0120, lines 14-26)*

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 32, 36, and 40 are rejected under 35 U.S.C.103(a) as being unpatentable over

Pandya as applied to claims 31, 35, and 39 above.

Pandya teaches the limitations of claims 31, 35, and 39 for the reasons above.

Pandya's invention differs from the claimed invention in that there is no specific

reference to the order in which the proposed acts are performed.

Pandya fails to teach claims 32, 36, and 40, which all state basically the same thing,

which reads as follows: "the controller stores the unit of data at the second storage location on

the storage system before determining the first storage location and storing the pointer."

However, stating that there is a sequence in which things must occur does not change the

purpose or functionality of the claimed invention. Therefore, it would have been obvious to one

of ordinary skill in the art to enable Pandya's "Memory System for a High Performance IP

Processor" to store the unit of data at the second location before storing the pointer on the first

location.

For further information, reference Ex parte Rubin , 128 USPQ 440 (Bd. App. 1959)

(Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first

coated with a metallic film and thereafter impregnated with a thermosetting material was held to

render prima facie obvious claims directed to a process of making a laminated sheet by reversing

the order of the prior art process steps.). See also In re Burhans, 154 F.2d 690, 69 USPQ 330

(CCPA 1946) (selection of any order of performing process steps is prima facie

obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230

(CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lev I. Iwashko whose telephone number is (571)272-1658. The

examiner can normally be reached on M-F (alternating Fridays), from 8-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for

unpublished applications is available through Private PAIR only. For more information about

the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
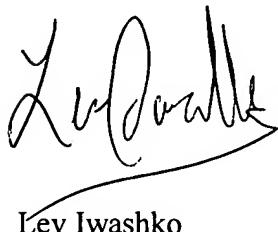
Lev Iwashko

**MATTHEW D. ANDERSON
PRIMARY EXAMINER**